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# UNITED STATES PATENT AND TRADEMARK OFFICE

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| 09/964,724 | 09/26/2001 | Xiao Feng Li | 42390P11585 | 1828 |

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| EXAMINER |
|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 2171 | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | | Applicant(s) | |
|---|---|---|---|---|
| **Office Action Summary** | 09/964,724 | | LI, XIAO FENG | |
| | Examiner | | Art Unit | |
| | Etienne P LeRoux | | 2171 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .  
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other:

## *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 8, 16 and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 8, 16 and 30 recite "determining that the plurality of successive type hierarchy references is insufficient to check the type of the data object." The specification does not enable one of ordinary skill in the art to ascertain why a plurality of references is insufficient to check the type of the data abject.

Claims 8, 16 and 30 recite "repeating operations a) through d) such that type checking of the data object is accomplished." The specification does not enable one of ordinary skill in the art to determine how often to repeat operations a) through d) in order to check the data object.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8, 16, 23, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 23 and 28 recite "wherein the plurality of successive type hierarchy references comprises a maximum number of successive type hierarchy references required by a specific application." The scope of the present invention is unclear because it is unclear what specific application is being claimed by Applicant.

Claims 7 and 29 recite "wherein the plurality of successive type hierarchy references comprises a number of successive type hierarchy references, the number of successive type hierarchy references dynamically determined at run time." The scope of the present invention is unclear what comprises a number.

Claims 8 and 16 recite "a) determining that the plurality of successive type hierarchy references is insufficient to check the type of the data object; b) obtaining a highest type hierarchy reference from the cache; c) accessing a subsequent data object, the subsequent data object referenced by the highest type hierarchy reference, the subsequent data object having a subsequent plurality of cached successive type hierarchy references corresponding to the subsequent data object; and d) accessing the subsequent plurality of cached successive type hierarchy references; and e) repeating operations a) though d) such that type checking of the data object is accomplished." The scope of the present invention is unclear because it is unclear what comprises a highest type, a subsequent data object, the subsequent data object having a subsequent plurality of cached successive type hierarchy references, and accessing the subsequent plurality of cached successive type hierarchy references.

### *Prior Art rejection Precluded*

Due to lack of enablement/indefiniteness of claims 6-8, 16, 23 and 28-30, refer to supra

rejection under 35 U.S.C. 112, a prior art rejection of these claims is not made in this Office

Action.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24, 25 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub No

US 2003/0065874 issued to Marron et al (hereafter Marron '874).

Claim 24:

Marron '874 discloses:

a cache memory having stored therein a plurality of successive type hierarchy references

corresponding to a data object [paragraph 50]

a main memory having stored therein instructions [paragraph 31]

and a processor [paragraph 14] to execute the instructions such that execution of the instructions

causes the processor to access the cached type hierarchy references at run time to perform type

checking of the data object.

Claim 25:

Marron '874 discloses wherein the data object includes a data structure, the data structure

storing the plurality of successive type hierarchy references [paragraph 80].

Claim 27:

Marron '874 discloses wherein the instructions include code of an object oriented

computer language [paragraph 8]


### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1-3, 9-11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Pub No US 2003/0065874 issued to Marron et al (hereafter Marron '874) in view of US Pat

No 5,793,965 issued to Vanderbilt et al (hereafter Vanderbilt '965).


Claim 1:

Marron '874 discloses caching a plurality of successive type hierarchy [paragraph 83]

references corresponding to a data object within the data structure of the data object [Fig 3,

paragraph 80]

Marron '874 fails to disclose accessing the cached type hierarchy references at run time

to perform type checking of the data object.

Vanderbilt '965 discloses accessing the cached type hierarchy references at run time to

perform type checking of the data object [abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify Marron '874 to include accessing the cached type hierarchy references at

run time to perform type checking of the data object as taught by Vanderbilt '965.

The ordinarily skilled artisan would have been motivated to modify Marron '874 per the

above for the purpose of retrieving information that has been previously tested and verified [col

3, lines 20-35 and col 2, lines 32-49]

Claim 2:

Marron '874 discloses wherein the plurality of successive type hierarchy references are

cached in a data structure of the data object [paragraph 80].

Claim 3:

Marron '874 discloses wherein the data structure is a data structure of an object oriented

computer language [paragraph 61].



Claim 9:

Marron '874 discloses caching a plurality of successive type hierarchy references

corresponding to a data object within the data structure of the data object [Fig 3, paragraph 80]

Marron '874 fails to disclose accessing the cached type hierarchy references at run time

to perform type checking of the data object.

Vanderbilt '965 discloses accessing the cached type hierarchy references at run time to perform type checking of the data object [abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Marron '874 to include accessing the cached type hierarchy references at run time to perform type checking of the data object [abstract] as taught by Vanderbilt '965.

The ordinarily skilled artisan would have been motivated to modify Marron '874 per the above for the purpose of retrieving information that has been previously tested and verified [col 3, lines 20-35 and col 2, lines 32-49]

Claim 10:

Marron '874 discloses wherein the plurality of successive type hierarchy references are cached in a data structure of the data object [paragraph 80].

Claim 11:

Marron '874 discloses wherein the data structure is a data structure of an object oriented computer language [paragraph 61].

Claim 14:

The combination of Marron '874 and Vanderbilt '965 discloses the elements of claim 9 as noted above.

The combination of Marron '874 and Vanderbilt '965 fails to disclose wherein the plurality of successive type hierarchy references comprises a maximum number of successive type hierarchy references required by a specific application.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Marron '874 and Vanderbilt '965 to include wherein the

plurality of successive type hierarchy references comprises a maximum number of successive

type hierarchy references required by a specific application.

The ordinarily skilled artisan would have been motivated to modify the combination of

Marron '874 and Vanderbilt '965 as per the above for the purpose of providing references per the

design basis.

Claim 15:

Vanderbilt '965 discloses wherein the plurality of successive type hierarchy references

comprises a number of successive type hierarchy references, the number of successive type

hierarchy references dynamically determined at run time [abstract].


Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the

combination of Marron '874 and Vanderbilt '965 and further in view of Pub No US

2003/0014442 issued to Shiigi et al (hereafter Shiigi '442).

Claim 4:

The combination of Marron '874 and Vanderbilt '965 discloses the elements of claims 1-

3 as noted above.

The combination of Marron '874 and Vanderbilt '965 fails to disclose JAVA.

Shiigi '442 discloses JAVA.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Marron '874 and Vanderbilt '965 to include JAVA as

taught by Shiigi '442.

The ordinarily skilled artisan would have been motivated to modify the combination of Marron '874 and Vanderbilt '965 per the above for the purpose of improving acceptability by using a well-known language such as JAVA.

Claim 12:

The combination of Marron '874 and Vanderbilt '965 discloses the elements of claims 9 and 11 as noted above.

The combination of Marron '874 and Vanderbilt '965 fails to disclose JAVA.

Shiigi '442 discloses JAVA.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Marron '874 and Vanderbilt '965 to include JAVA as taught by Shiigi '442.

The ordinarily skilled artisan would have been motivated to modify the combination of Marron '874 and Vanderbilt '965 per the above for the purpose of improving acceptability by using a well-known language such as JAVA.

Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Marron '874 and Vanderbilt '965 and further in view of US Pat No 4,945,475 issued to Bruffey et al (hereafter Bruffey '475).

Claim 5:

The combination of Marron '874 and Vanderbilt '965 discloses the elements of claim 1 as noted above.

The combination of Marron '874 and Vanderbilt '965 fails to disclose wherein the

plurality of successive type hierarchy references comprises three successive type

hierarchy references.

Bruffey '475 discloses wherein the plurality of successive type hierarchy references

comprises three successive type hierarchy references [Fig 6].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Marron '874 and Vanderbilt '965 to include wherein the

plurality of successive type hierarchy references comprises three successive type

hierarchy references as taught by Bruffey '475.

The ordinarily skilled artisan would have been motivated to modify the combination of

Marron '874 and Vanderbilt '965 for the purpose of providing a catalog for a plurality of data

objects [abstract]

Claim 13

The combination of Marron '874 and Vanderbilt '965 discloses the elements of claim 9

as noted above.

The combination of Marron '874 and Vanderbilt '965 fails to disclose wherein the

plurality of successive type hierarchy references comprises three successive type

hierarchy references.

Bruffey '475 discloses wherein the plurality of successive type hierarchy references

comprises three successive type hierarchy references [Fig 6].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Marron '874 and Vanderbilt '965 to include wherein the

plurality of successive type hierarchy references comprises three successive type

hierarchy references as taught by Bruffey '475.

The ordinarily skilled artisan would have been motivated to modify the combination of

Marron '874 and Vanderbilt '965 for the purpose of providing a catalog for a plurality of data

objects [abstract]


Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat

No 5,819,283 issued to Turkowski (hereafter Turkowski '283) in view of US Pat No 6,427,123

issued to Sedlar (hereafter Sedlar '123).

Claim 17:

Turkowski '283 discloses a type field to specify the data object type [col 2, lines 4-15].

Turkowski '283 fails to disclose an identifier that identifies successive type hierarchy

references of the data object.

Sedlar '123 discloses an identifier that identifies successive type hierarchy references of

the data object [claim 34]

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify Turkowski '283 to include an identifier that identifies successive type

hierarchy references of the data object as taught by Sedlar '123.

The ordinarily skilled artisan would have been motivated to modify Turkowski '283 as

noted above for the purpose of maintaining a hierarchical index to efficiently access information

in a relational system based on path names [abstract]

Claim 20:

Turkowski '283 discloses wherein the data objects are data objects of an object oriented

computer language [abstract].


Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination

of Turkowski '283 and Sedlar '123 and further in view of Pub No US 2002/0021788 issued to

Kasvand et al (hereafter Kasvand '788).

Claim 18:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17

as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the

identifier is a sub-root log to store the plurality of successive type hierarchy references of the

data object.

Kasvand '788 discloses wherein the identifier is a sub-root log to store the plurality of

successive type hierarchy references of the data object [paragraph 7].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the

identifier is a sub-root log to store the plurality of successive type hierarchy references of the

data object as taught by Kasvand '788.

The ordinarily skilled artisan would have been motivated to modify the combination of Turkowski '283 and Sedlar '123 per the above for the purpose of making it easier for the user to see the flow of logs and also demonstrates the true cause of the problem [paragraph 3]

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of US Pat No 6,631,478 issued to Wang et al (hereafter Wang '478)

Claim 19:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the identifier is a pointer to a sub-root log, the sub-root log to store the plurality of successive type hierarchy references of the data object.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the identifier is a pointer to a sub-root log, the sub-root log to store the plurality of successive type hierarchy references of the data object as taught by Wang '478.

The ordinarily skilled artisan would have been motivated to modify the combination of per the above for the purpose of providing a high performance stable storage system which provides stable and fast storage services to applications built on top of one or more operating system (OS) kernels in a computer network.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of Shiigi '442.

Claim 21:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claims 17 and 20 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the object oriented computer language is selected form the list consisting of JAVA

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the object oriented computer language is selected form the list consisting of JAVA as taught by Shiigi '442.

The ordinarily skilled artisan would have been motivated to modify the combination of to include Turkowski '283 and Sedlar '123 for the purpose of improving acceptability buy using a well-known language such as JAVA.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of Bruffey '475.

Claim 22:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references.

Bruffey '475 discloses wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references [Fig 6].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references as taught by Bruffey '475.

The ordinarily skilled artisan would have been motivated to modify the combination of Turkowski '283 and Sedlar '123 for the purpose of providing a catalog for a plurality of data objects [abstract]

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marron '874 in view of US Pat No 6,631,478 issued to Wang et al (hereafter Wang '478)

<u>Claim 26</u>:

Marron '874 discloses the elements of claim 24 as noted above.

Marron '874 fails to disclose wherein the identifier is a pointer to a sub-root log, the sub-root log to store the plurality of successive type hierarchy references of the data object.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Marron '874 to include wherein the identifier is a pointer to a sub-root log,

the sub-root log to store the plurality of successive type hierarchy references of the data object as

taught by Wang '478.

The ordinarily skilled artisan would have been motivated to modify Marron '874 per the

above for the purpose of providing a high performance stable storage system which provides

stable and fast storage services to applications built on top of one or more operating system (OS)

kernels in a computer network.


*Conclusion*

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620.

The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Patent related correspondence can be forwarded via the following FAX number (703)

872-9306

Etienne LeRoux

November 4, 2003

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